

Claims

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1. A method of transferring at least two sheets (200, 202), which are arranged in a shingled mode of arrangement in a sheet transport direction (P), to a sheet handling machine (600, 602) in which the at least two sheets are moved at a first speed after the transfer, a first and a second sheet of the at least two sheets being spaced by a certain length of displacement (X) in the sheet transport direction (P), the method comprising the following steps:
    - (a) supplying the at least two sheets (200, 202) to the sheet handling machine at a second speed, the second speed being higher than the first speed; and
    - (b) decelerating the second sheet (202) to a third speed as soon as the first sheet (200) is decelerated to the first speed in the sheet handling machine, the third speed being lower than the second speed.
  2. A method according to claim 1, wherein an edge of the first sheet (200) which is the leading edge (200a) in the sheet transport direction (P) and an edge of the second sheet (202) which is the leading edge (202a) in the sheet transport direction (P) are displaced relative to one another by the length of displacement (X), the first sheet being decelerated at the front edge thereof and the second sheet (202) being decelerated at the edge constituting the rear edge (202b) in the sheet transport direction (P).
  3. A method according to one of the claims 1 to 2, the method comprising the following steps:
    - (c) advancing the at least two sheets (200, 202) in the sheet handling machine by a distance which is determined by the sheet format and the length of displacement; and

(d) repeating steps (a) to (c) for an additional pair of sheets (210, 212) arranged in a shingled mode of arrangement in the sheet transport direction (P).

4. A method according to claim 3, wherein the additional pair of sheets is deposited in the sheet handling machine shingled in an ascending or descending mode.

5. A method according to one of the claims 1 to 4, wherein the first speed is 0.25 m/s, the second speed is 3 m/s, and the third speed is 2 m/s.

6. A method according to one of the claims 1 to 5, wherein the third speed is equal to the first speed.

7. A device for transferring at least two sheets, which are arranged in a shingled mode of arrangement in a sheet transport direction (P), to a sheet handling machine (600, 602) which comprises a first transport unit (304) which moves the at least two sheets at a first speed after the transfer, a first and a second sheet of the at least two sheets being spaced by a certain length of displacement (X) in the sheet transport direction (P), the device comprising:

a feed roll (308a, 308b) which feeds the at least two sheets to the sheet handling machine at a second speed, the second speed being higher than the first speed; and

a brake roll (322a, 322b) which decelerates the second sheet to a third speed as soon as the first sheet is decelerated by the transport unit (304), the third speed being lower than the second speed.

8. A device according to claim 7, wherein the transport unit (304) comprises a first shingle roll (334a) which engages the edge of the first sheet constituting the leading edge in the sheet transport direction (P), and wherein, as soon

as the shingle roll (334a) has engaged the first sheet, the brake roll (322a, 322b) engages the edge of the second sheet constituting the trailing edge in the sheet transport direction.

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9. A device according to claim 7 or 8, wherein the transport unit (304) comprises a substantially continuously driven conveying belt (328) and a plurality of shingle rolls (334a - 334d) which are pretensioned towards the conveying belt (328) and which are spaced apart in the sheet transport direction (P) by a distance determined by the sheet format and the sheet displacement (X).
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10. A device according to one of the claims 7 to 9 comprising a trap (314), which is arranged between the feed roll (308a, 308b) and the first shingle roll (334a), the trap (314) causing descending shingles of sheets in a first position and ascending shingles of sheets in a second position.
11. A device according to claim 10, wherein the brake roll (322a) is associated with a first sheet path (320a) along which the at least two sheets travel when the trap (314) is at the first position, an additional brake roll (322b) being provided, which is associated with a second sheet path (320b) along which the at least two sheets travel when the trap (314) is at the second position.
12. A device according to one of the claims 7 to 11, wherein the sheet handling machine comprises:

a second transport unit (502), which is arranged after the first transport unit (304) in the sheet transport direction (P), the first transport unit (304) collecting the sheets continuously and transferring them to the second transport unit (502), when a predetermined number of sheets is arranged in the first transport unit (304), the sheets in the second transport unit (502) being arranged

in a shingled mode of arrangement in a sheet transport direction (P) in such a way that the leading edges of the sheets in the sheet transport direction are spaced apart by a certain length of displacement, the second transport unit (502) moving the sheets in a clocked mode in such a way that the sheets are displaced by a predetermined distance in the sheet transport direction (P), the distance depending on the number of sheets to be distributed and on the sheet displacement; and

a distributing unit (504) which, when the sheets move in the transport unit (502), discharges from the sheet handling machine the respective leading sheet in the sheet transport direction.

13. A device according to one of the claims 7 to 11, wherein the paper handling machine comprises:

a second transport unit (502) which is arranged such that it extends parallel to the first transport unit (304),

a deflection means (604) which is arranged in front of the first and second transport units (304, 502) when seen in the sheet transport direction (P) and which conducts sheets to the first transport unit (304) when occupying a first position and sheets to the second transport unit (502) when occupying a second position, the deflection means (604) switching over from the first to the second position, when a predetermined number of sheets has been received in the respective transport unit, and

a distributing unit (504) arranged after the first and second transport unit (304, 502) when seen in the sheet transport direction,

wherein the transport unit having no sheets supplied thereto moves the sheets in a clocked mode in such a way that the sheets are displaced by a predetermined distance

in the sheet transport direction, the distance depending on the number of sheets to be distributed and on the sheet displacement;

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b wherein, when the sheets are being moved, the distributing unit (504) discharges from the paper handling machine the respective leading sheet in the sheet transport direction (9).

14. A device according to claim 12 or 13, wherein the second transport unit (502) comprises a conveying belt (514) and a plurality of transport rolls (520a - 520d) which are pretensioned towards the conveying belt (514) and which are spaced apart in the sheet transport direction (P) by a distance determined by the sheet displacement (X) and by the sheet format.
15. A device according to one of the claims 12 to 14, wherein the distributing unit (504) includes a counter (534a, 534b, 536, 538) which detects the number of sheets distributed.
16. A device according to one of the claims 7 to 15, wherein the third speed is equal to the first speed.